

July 31, 2017

Ms. Nichole Osuch
Project Manager, Voluntary Remediation Program
Arizona Department of Environmental Quality
1110 West Washington Street
Phoenix, Arizona 85007

Re: Amended Remedial Action Plan
City of Phoenix Parcel Number 308-06-005C
Site Code: 512733-00

Dear Ms. Osuch:

Thank you for your e-mail correspondence of June 16, 2017 documenting Arizona Department of Environmental Quality (ADEQ) Voluntary Remediation Program (VRP) and City of Phoenix (COP) June 16, 2017 meeting. Please consider this letter to constitute revisions to the Amended Remedial Action Plan for the above-referenced site as discussed during the meeting and documented via e-mail.

Section 3.1

The first two paragraphs of Section 3.1 will be replaced with the following text:

The overall goal of remediation at the Site is to address contamination resulting from historical use of a former manganese ore processing facility and allow for non-residential use of the former processing areas within the subject property. To this end, the City has decided to use pre-determined NR-SRLs, as identified in the Arizona Administrative Code (A.A.C). R18-7-Appendix A, as the soil remediation goal(s) for the process areas. The soil remediation goals selected for the property to the east of the manganese ore processing area are the pre-determined R-SRLs, also identified in A.A.C. R18-7-Appendix A.

The constituents of concern to be addressed via a remedial action and their associated remediation goals are:

Constituent of Concern	Non-Residential SRL Remediation Goal	Residential SRL Remediation Goal
Arsenic	10 mg/Kg in soil	10 mg/Kg in soil
Lead	800 mg/Kg in soil	400 mg/Kg in soil
Manganese	32,000 mg/Kg in soil	3,300 mg/Kg in soil
Thallium	67 mg/Kg in soil	5.2 mg/Kg in soil
Note: Levels are based on standards established in Appendix A of the Arizona Administrative Code, Title 18, Chapter 7, revised March 2009. SRL – Soil Remediation Level		

Section 5.2.5, Embedded Table Following First Paragraph

For the row documenting the depth of sampling at the pothole at grid location N6, add the depth of 6 feet:

N6	3,6
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Section 5.3.1, Second and Third Paragraph

The second and third paragraphs of Section 5.3.1 will be replaced with the following text and table to indicate the selected remediation goals for individual Decision Units (DU):

Figure 4 depicts 29 Decision Units (DUs) located within and surrounding the former process area of the Site including the proposed excavation areas and areas that are not planned for excavation. These DUs range in size from about 400 square feet to 1.68 acres. One additional larger DU (24) is proposed for the area to the east of the historic processing area that contains native soils. DUs 25 through 28 encompass the area to the south of the processing area and north of the railroad tracks. Each of DUs 25 through 28 is divided into four approximately ¼-acre sub-units (with the exception of DU28, which includes smaller subunits). DUs 24 through 28 are depicted in Figure 5. The proposed remediation goals for the DUs are summarized in the table below.

DU	Remediation Goal	DU	Remediation Goal	DU	Remediation Goal	DU	Remediation Goal	DU	Remediation Goal
1a	NR-SRL	5b	NR-SRL	13	NR-SRL	21	NR-SRL	29	R-SRL
1b	NR-SRL	6	NR-SRL	14	NR-SRL	22	R-SRL		
1c	NR-SRL	7	NR-SRL	15	NR-SRL	23	NR-SRL		
1d	NR-SRL	8	NR-SRL	16	R-SRL	24	R-SRL		
2	NR-SRL	9	NR-SRL	17	R-SRL	25	R-SRL		
3	NR-SRL	10	NR-SRL	18	R-SRL	26	R-SRL		
4	NR-SRL	11	NR-SRL	19	R-SRL	27	R-SRL		
5a	NR-SRL	12	NR-SRL	20	R-SRL	28	R-SRL		

A summary of the DUs is presented in Tables 1 and 2. Table 1 includes a list of all sampling performed within each DU, the type of sample analysis (laboratory or XRF), a narrative description of whether the analysis indicated an exceedance of the NR-SRL or R-SRL, flagging of historic sample locations that are not expected to be disturbed by proposed excavation activities, the source of the sampling data, and a short description of the activities to be conducted within each DU. Table 2 presents a description of the activities to be conducted within each DU, a list of the proposed confirmation samples to be collected within the DU including sampling depth, and a list of the existing samples and depths.

Section 5.3.4

Section 5.3.4 will be replaced in its entirety with the text below:

Following verification of the excavation extent with the XRF analyzer and laboratory analysis of sidewall samples, confirmation soil sampling for laboratory analysis will be conducted in each DU by the Remediation Consultant. A summary of the number and location of confirmation samples to be collected in each DU is provided in Table 2 including the depths of the proposed samples below initial grade and the number of samples collected within each depth interval. Confirmation sampling locations are depicted in Figure 5 for DUs located outside of the former processing area within DU 24. Discrete samples will be collected in DU 24 at the locations indicated in Figure 5.

Figure 5 also depicts DU 25 through DU 28 located outside of the former processing area. DUs 25 through 28, which are about 1 acre in size or less, are divided into ¼-acre subunits. Confirmation sampling will consist of a single composite sample to be collected from within each subunit of the larger DU. The composite sample will consist of five aliquots collected at a depth of 0.5 feet. Aliquots will be collected at the center of each subunit and from the center of each of the four quadrants of the subunit.

Figure 6 depicts proposed confirmation sampling locations for DUs within and adjacent to the former ore processing area. Proposed laboratory confirmation samples that are located outside of planned excavation areas and that will be collected at depths of 0.5 feet will be collected using a shovel and/or trowel. Proposed laboratory confirmation samples that are located outside of planned excavation areas and that will be collected at depths of 3 feet or greater will be collected by potholing using Contractor excavation equipment or direct push rig. This subset of deeper confirmation sampling locations is summarized in the table below:

Sample Grid Location	Depths to be Sampled (feet)
B4	0.5, 3, 4
E4	0.5, 3, 4
K3	0.5, 3
Q11	3
U11	6
M11	0.5, 3
H12	3
A7	3
A9	3
B8	3
O5	0.5, 3, 6
P6	0.5, 3, 6
P8	0.5, 3, 6
Q5	0.5, 3, 6
Q9	0.5, 3, 6

Figure 6 also indicates historic sampling point locations (and depths) for which laboratory data are available and which are not expected to be disturbed by excavation activities. These data may be used along with confirmation sampling results to demonstrate that a DU meets either R-SRLs or NR-

SRLs. Note that the depths of wall and floor samples for the excavated areas are described in Table 1, but not indicated on Figure 6. Collected samples will be submitted for analysis of target metals as described in Section 6.0.

DUs 16, 17, 18, 19, and 29 are subdivided into four approximately ¼-acre subunits as depicted on Figure 6. Five aliquots will be collected from each ¼-acre sub-unit of these DUs and composited into a single sample for analysis. Four composite samples will be analyzed for each DU. Aliquots will be collected from 0.5 feet in DUs 16, 17, and 29. Aliquots will be collected from 0.5 feet and 3 feet bgs in DUs 18 and 19. Subcontractor equipment, a hand auger, or a direct push rig will be used to collect the 3-foot aliquots (five aliquots per subunit, four subunits per DU, two DUs, for a total of 40 aliquots).

A similar process will be followed for DUs 25, 26, 27, and 28 with five aliquots collected from 0.5 feet bgs for each of four ¼-acre sub-units in the one-acre DU. Only three aliquots will be collected from sub-unit 28d due to the small size of this sub-unit.

Analytical results for each DU will be compared to R-SRLs and NR-SRLs to evaluate whether: a) remedial goals have been achieved for the DU; and b) the DU meets R-SRL or NR-SRL criteria (i.e., whether a DEUR is required for the DU). The following evaluation criteria will be applied when evaluating achievement of remedial goals:

- a. For small DUs located within a larger DU (e.g., DU 2 located within DU 1a), the discrete analytical data will be used to evaluate whether the excavation should be expanded; and the highest concentration for each analyte from the data set will be used as a single data point in evaluating the 95% upper confidence limit (UCL) of the mean for that analyte in the surrounding DU.
- b. For DUs of 1 to 1.5 acres with a non-residential remedial goal, the 95% UCL will be calculated for each analyte based on the collected confirmation samples for each depth interval (and including the single highest concentration for each analyte from each of the smaller DUs located within the boundaries of the DU at the corresponding depth interval or intervals).
- c. For DUs of 1 acre or less with a residential remedial goal, four composite samples from ¼-acre subunits will be used to evaluate achievement of the remedial goal for each applicable depth interval. The concentrations of the composite samples will be compared directly to the R-SRL. The depth interval of interest for these DUs is 0.5 feet, with the exception of DUs 18 and 19 where the 0.5-foot and the 3-foot interval will be evaluated.
- d. For DU 24, the large former agricultural area located to the east of the processing area, discrete sample results will be compared directly to the R-SRL.

For those cases where the analytical data set for a non-residential DU will be used to calculate the 95% upper confidence limit (UCL) of the mean, if the 95% UCL is less than remediation criteria, the remedial action will be deemed as compliant with remediation objectives. Non-normal distributions will be addressed using standard statistical methodologies, as appropriate, to yield similar tests of confidence. If the 95% UCL exceeds remediation criteria, then the data will be assessed to evaluate whether additional sampling is warranted or if additional targeted excavation is required.

Section 10.0, Tenth Bullet

The tenth bullet item in Section 10.0 will be amended to read:

- Results of laboratory analysis for confirmation sampling and associated 95% UCL calculations, where applicable

Section 12.0, Schedule Table

The schedule presented in Section 12.0 will be replaced with the following:

Activity	Start Date	End Date
Submit Remedial Action Plan to ADEQ for Review and Comment	9/14/2016	10/24/2016
Submit Revised Remedial Action Plan to ADEQ for Review and Comment	-	5/17/2017
Receive Comments from ADEQ on Remedial Action Plan	-	6/21/2017
Submit Revised Remedial Action Plan (if necessary) to ADEQ for Approval	-	7/31/ 2017
Receive Approval from ADEQ on Remedial Action Plan	-	8/4/2017
Prepare Technical Specifications for Contractor Solicitation	-	6/2/2017
Soil Removal Action Solicitation Issued	-	8/10/2017
Conduct Bid Walk at Site	-	8/18/2017
Remedial Contractor Evaluation and Award	-	9/8/2017
Remedial Contractor Notice to Proceed		10/24/2017
Conduct Remedial Action	11/1/2017	12/29/2017
Prepare Remedial Action Completion Report	1/2/2018	2/9/2018
Submit Remedial Action Completion Report to ADEQ for Review and Comment	-	2/9/2018
Receive Comments from ADEQ on Draft Remedial Action Completion Report	-	3/26/2018
Submit Final Remedial Action Completion Report to ADEQ for Approval	-	4/13/2018
Submit DEUR and Request for NFA Report	4/16/2018	4/16/2018

Table 1

Table 1 presenting a summary of Decision Units, historical sampling results, proposed remediation activities, and proposed confirmation sampling has been divided into two tables. The revised Table 1 presents the list of DUs, the size of the DU, a summary of the historical data associated with each DU, the source(s) of the data, and the proposed action for each DU along with the proposed cleanup goal. Table 2 presents the list of DUs, the proposed action for each DU, and the proposed number and location of laboratory confirmation samples to be collected within each DU at specific depth

intervals. Table 2 also indicates whether historical sampling data exists at the listed depth intervals and if there is overlapping confirmation data from adjacent DUs. The revised Tables 1 and 2 are attached to this correspondence.

Figures 4, 5, and 6

Figures 4, 5, and 6 have been revised as follows:

- *DUs 16, 17, 18, and 19 immediately to the east of the processing area at the Site have been replaced with DUs of one acre or less. These new DUs 16, 17, 18, 19, and 29 are divided into subunits of 1/4-acre or less.*
- *DU 25 has been replaced with four DUs of one acre or less. These new DUs are divided into subunits of 1/4-acre or less.*

The revised Figures are attached to this correspondence.

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Thank you for the opportunity to meet with you to discuss confirmation sampling strategies for this project. If you have any additional questions or comments, please contact Elizabeth Zima with the City of Phoenix (elizabeth.zima@phoenix.gov) or me (janet.workman@aecom.com).

Sincerely,
AECOM



EXPIRES 03-31-2020

Janet M. Workman, P.E.
Project Manager

C: Elizabeth Zima, City of Phoenix

Attachments:

Table 1. Summary Description of Decision Units, Historical Sampling, and Proposed Remediation Activities

Table 2. Summary of Proposed Confirmation Sampling Following Excavation

Figure 4. Proposed Decision Units

Figure 5. Proposed Sampling Locations

Figure 6. Proposed Laboratory Confirmation Sampling Locations

Table 1. Summary Description of Decision Units, Historical Sampling, and Proposed Remediation Activities

Decision Unit (size in acres)	Existing Sample Points	Depth (feet) see notes	Analysis Type	Results (As=Arsenic; Pb=Lead; Mn=Manganese; Tl=Thallium; SRL=Soil Remediation Level; NR=Non-Residential; R=Residential; RL= Reporting Limit)	Reference	Actions	
1a (1.145)	PO-4	0.5	Lab	No exceedances	URS, 2013 Phase II ESA	Re-locate concrete saddles to site area not impacted by site activities. Excavate as indicated on Figure 3. Decision Units 2, 7, and 8 are also located within this DU. Collect confirmation samples from sidewalls at 0.5 feet and floor of excavation. Cleanup Goal: Non-Residential	
	SB-1	2, 15	Lab	No exceedances	URS, 2012 Manganese Ore Area Letter		
	DS-8	0.5, 3	Lab	Exceed As, Pb NR-SRL at 0.5 feet Exceed Tl R-SRL at 0.5 feet	URS, 2013 Phase II ESA		Re-locate concrete saddles to site area not impacted by site activities. Excavate as indicated on Figure 3. Decision Units 2, 7, and 8 are also located within this DU. Collect confirmation samples from sidewalls at 0.5 feet and floor of excavation. Cleanup Goal: Non-Residential
	DS-9	0.5, 3	Lab	Exceed As, Pb, Mn, Tl NR-SRL at 0.5 feet			
	PO-2	0.5	Lab	No exceedances			
	PO-3	0.5	Lab	No exceedances			
	A5	0.5, 3, 6	XRF	No exceedances			
	A5	3	Lab	As equals NR-SRL at 3 feet			
	B4	0.5, 3, 6	XRF	No exceedances			
	B6	0.5, 3, 6	XRF	Exceed Mn, Pb NR-SRL at 0.5 feet			
	B6	3	Lab	No exceedances			
	B8	0.5, 3, 6	XRF	No exceedances			
	C5	0.5, 3, 6	XRF	No exceedances			
	C7	0.5, 3, 6	XRF	Exceed Mn, Pb NR-SRL at 0.5 feet Exceed Mn R-SRL at 3 and 6 feet			
	C9	0.5, 3, 6	XRF	Exceed Tl R-SRL at 3 feet			
	C9	3	Lab	No exceedances			
	D4	0.5, 3, 6	XRF	No exceedances			
	D6	0.5, 3, 6	XRF	Exceed Mn, Pb NR-SRL at 0.5 feet			
	D6	6	Lab	No exceedances			
	D8	0.5, 3, 6	XRF	Exceed Mn, Pb NR-SRL at 0.5 feet			
	E5	0.5, 3, 6	XRF	Exceed Tl R-SRL at 3 feet			
	E7	0.5, 3, 6	XRF	Exceed Mn R-SRL at 0.5 feet			
	E9	0.5, 3, 6	XRF	No exceedances			
	E9	6	Lab	No exceedances			
	SS-4	2, 4	Lab	See DU 7	URS, 2012 Manganese Ore Area Letter		
	SS-5	2, 4	Lab	See DU 8			
	SS-15	2, 4	Lab	See DU 2			

Notes:
Bold = lab sample location that will remain following planned excavation
Italic = XRF sample location that will remain following planned excavation

Shading = NR-SRL exceedance

Table 1. Summary Description of Decision Units, Historical Sampling, and Proposed Remediation Activities

Decision Unit (size in acres)	Existing Sample Points	Depth (feet) see notes	Analysis Type	Results (As=Arsenic; Pb=Lead; Mn=Manganese; Tl=Thallium; SRL=Soil Remediation Level; NR=Non-Residential; R=Residential; RL= Reporting Limit)	Reference	Actions
1b (1.684)	DS-7	0.5, 3	Lab	Exceed As, Pb, Tl NR-SRL at 0.5 feet	URS, 2013 Soil Investigation Additional Analyses - Selected Lower Depth Samples Correspondence	Excavate as indicated on Figure 3. Decision Units 1c, 1d, 6, and 10 are also located within this DU. Collect confirmation samples from sidewalls at 0.5 feet and floor of excavation. Confirmation samples to be collected east of PO-8 in excavation sidewalls (DU 17) Cleanup Goal: Non-Residential
	DS-6	0.5, 3	Lab	Exceed As, Pb NR-SRL at 0.5 feet Exceed Tl R-SRL at 0.5 feet		
	PO-6	0.5	Lab	No exceedances		
	DS-3	0.5, 3	Lab	Exceed As, Pb NR-SRL at 0.5 feet		
	DS-4	0.5	Lab	No exceedances		
	DS-5	0.5, 3	Lab	Exceed As NR-SRL at 0.5 feet Exceed Mn, Tl R-SRL at 0.5 feet		
	PO-8	0.5, 3	Lab	Exceed As, Pb, Mn, Tl NR-SRL at 0.5 feet		
	SB-2	2, 15	Lab	No exceedances	URS, 2012 Manganese Ore Area Letter	
	SS-16	2	Lab	No exceedances	URS, 2016 Soil Sampling and Risk Assessment Results Report	
	F4	0.5, 3, 6	XRF	Exceed Mn R-SRL at 0.5 feet		
	F6	0.5, 3, 6	XRF	Exceed Pb NR-SRL at 0.5 feet Exceed Mn R-SRL at 0.5 feet		
	F6	0.5	Lab	Exceed Pb NR-SRL at 0.5 feet Exceed Mn R-SRL at 0.5 feet As, Tl RLs above NR-SRL		
	G5	0.5, 3, 6	XRF	Exceed Tl R-SRL at 0.5 feet		
	H4	0.5, 3, 6	XRF	Exceed Tl R-SRL at 0.5 feet		
	H4	3	Lab	No exceedances		
	H6	0.5, 3, 6	XRF	Exceed Pb, Mn NR-SRL at 0.5 feet		
	H6	0.5	Lab	Exceed Pb, Mn NR-SRL at 0.5 feet As, Tl RLs above NR-SRL		
	I3	0.5, 3, 6	XRF	Exceed Pb, MN R-SRL at 0.5 feet Exceed Tl R-SRL at 0.5 feet		
	I5	0.5, 3, 6	XRF	Exceed Mn R-SRL at 0.5 feet		
	J4	0.5, 3, 6	XRF	Exceed Mn R-SRL at 0.5 feet		
	J6	0.5	XRF	Exceed Pb, Mn NR-SRL at 0.5 feet		
	K3	0.5, 3, 6	XRF	Exceed Mn R-SRL at 0.5 feet		
	K5	0.5, 3, 6	XRF	Exceed As NR-SRL at 0.5 feet Exceed Mn R-SRL at 0.5 feet		
	K7	0.5, 3, 6	XRF	Exceed As NR-SRL at 0.5 feet Exceed Mn R-SRL at 0.5 feet		
	K7	3	Lab	No exceedances		
	L4	0.5, 3, 6	XRF	See DU 10		
	L6	0.5, 3, 6	XRF	No exceedances		
	L8	0.5, 3, 6	XRF	Exceed As, Pb, Mn NR-SRL at 0.5 feet		
	M3	0.5, 3, 6	XRF	Exceed Mn R-SRL at 0.5 feet		

Notes:
Bold = lab sample location that will remain following planned excavation
Italic = XRF sample location that will remain following planned excavation

Shading = NR-SRL exceedance

Table 1. Summary Description of Decision Units, Historical Sampling, and Proposed Remediation Activities

Decision Unit (size in acres)	Existing Sample Points	Depth (feet) see notes	Analysis Type	Results (As=Arsenic; Pb=Lead; Mn=Manganese; Tl=Thallium; SRL=Soil Remediation Level; NR=Non-Residential; R=Residential; RL= Reporting Limit)	Reference	Actions
1b (cont) (1.684)	M5	<i>0.5, 3, 6</i>	XRF	Exceed Mn R-SRL at 0.5 feet Exceed Tl R-SRL at 3 feet	URS, 2016 Soil Sampling and Risk Assessment Results Report	
	M7	<i>0.5, 3, 6</i>	XRF	Exceed As, Pb, Mn NR-SRL at 0.5 feet		
	M9	<i>0.5, 3, 6</i>	XRF	Exceed Mn R-SRL at 6 feet		
	N8	<i>0.5, 3, 6</i>	XRF	Exceed Tl R-SRL at 3 feet		
	RE-M9	<i>8</i>	XRF	No exceedances		
	Re-PO-8	<i>8</i>	XRF	No exceedances		
1c (0.101)	H6	<i>0.5, 3, 6</i>	XRF	Exceed Pb, Mn NR-SRL at 0.5 feet	URS, 2016 Soil Sampling and Risk Assessment Results Report	Vactor soil/processed ore off of concrete surface. Excavate soil around the edge of the concrete to base of footer and collect samples. Sample base of excavation around the concrete Cleanup Goal: Non-Residential
	H6	<i>0.5</i>	Lab	Exceed Pb, Mn NR-SRL at 0.5 feet As, Tl RLs above NR-SRL		
	J6	<i>0.5</i>	XRF	Exceed Pb, Mn NR-SRL at 0.5 feet		
1d (0.013)	None					Grub between semi-circular concrete structures. Vactor soil/processed ore off of concrete surface. Excavate soil around the edge of the concrete to the depth of the footer. Sample base of excavation around the concrete. Cleanup Goal: Non-Residential

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Table 1. Summary Description of Decision Units, Historical Sampling, and Proposed Remediation Activities

Decision Unit (size in acres)	Existing Sample Points	Depth (feet) see notes	Analysis Type	Results (As=Arsenic; Pb=Lead; Mn=Manganese; Tl=Thallium; SRL=Soil Remediation Level; NR=Non-Residential; R=Residential; RL= Reporting Limit)	Reference	Actions
2 (0.009)	SS-15	2, 4	Lab	Exceed As, Pb, Mn, Tl NR-SRL at 2 feet	URS, 2012 Manganese Ore Area Letter	Excavate as shown on Figure 3. Collect confirmation samples from side walls at 3 feet and floor of excavation Cleanup Goal: Non-Residential
3 (0.170)	DS-2	0.5, 3, 6	Lab	Exceed As, Mn NR-SRL at 0.5 feet Exceed Tl R-SRL at 0.5 feet Exceed Mn R-SRL at 3 feet	URS, 2013 Phase II ESA	Demolish concrete as necessary. Excavate as shown on Figure 3. Collect confirmation samples from side walls at 0.5 feet and floor of excavation. Cleanup Goal: Non-Residential
	Q7	0.5, 3, 6	XRF	Exceed As, Mn, Pb NR-SRL at 0.5 feet	URS, 2016 Soil Sampling and Risk Assessment Results Report	
4 (0.115)	SB-3	2, 3	Lab	Exceed As, Mn NR-SRL at 2 feet Exceed As, Pb, Mn NR-SRL at 3 feet Exceed Tl R-SRL at 2 and 3 feet Exceed Sb R-SRL at 3 feet	URS, 2012 Manganese Ore Area Letter	Demolish concrete as necessary. Excavate as shown on Figure 3. Collect confirmation samples from side walls and floor of excavation to confirm below NR-SRLs. Sidewall sample locations to include 3 depths at each location (0.5, 3, and 6). Cleanup Goal: Non-Residential
	SB-4	2, 15	Lab	No Exceedances	URS, 2013 Phase II ESA	
	DP-7	0.5, 2, 4	Lab	No Exceedances		
	DP-8	0.5, 2	Lab	Exceed As, Mn, Tl NR-SRL at 0.5 Exceed Sb, Pb R-SRL at 0.5 feet		
	Re-SB-3	8, 10	XRF	Exceed Mn R-SRL at 8 feet		
	O7	0.5, 3, 6	XRF	Exceed Mn R-SRL at 3 feet Exceed As NR-SRL at 6 feet Exceed Mn R-SRL at 6 feet		
	O7	6	Lab	Exceed Mn R-SRL at 6 feet As high RL above NR-SRL		

Notes:
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Italic = XRF sample location that will remain following planned excavation

Shading = NR-SRL exceedance

Table 1. Summary Description of Decision Units, Historical Sampling, and Proposed Remediation Activities

Decision Unit (size in acres)	Existing Sample Points	Depth (feet) see notes	Analysis Type	Results (As=Arsenic; Pb=Lead; Mn=Manganese; Tl=Thallium; SRL=Soil Remediation Level; NR=Non-Residential; R=Residential; RL= Reporting Limit)	Reference	Actions
5a (1.108)	G9	0.5, 3, 6	XRF	No Exceedances	URS, 2016 Soil Sampling and Risk Assessment Results Report	Following grubbing, sample location H8 at 3 feet and 6 feet and analyze for target compounds. (Goal is to verify the excavation depth - 0.5 feet vs 3 feet.) Remove top 2 feet of soil, stockpile, and sample for target compounds. Pending results of analysis, soil will either be transported and disposed, or used as backfill. Complete excavation to depth indicated on Figure 3 unless field changes are made based on sampling results at H8. Collect confirmation samples from side walls (at depth of 0.5 and/or 3 feet) and floor of excavation. Cleanup Goal: Non-Residential
	H8	0.5	XRF	No Exceedances		
	H10	0.5, 3, 6	XRF	Exceed Mn, Pb NR-SRL at 3 feet		
	I9	0.5, 3, 6	XRF	Exceed Pb NR-SRL at 3 feet Exceed Mn R-SRL at 3 feet		
	I9	3	Lab	Exceed Pb NR-SRL; As, Tl high RLs above NR-SRLs; Exceed Mn R-SRL		
	I11	0.5, 3, 6	XRF	Exceed Mn R-SRL at 0.5 feet		
	J8	0.5	XRF	Exceed Mn, Pb R-SRL at 0.5 feet		
	J8	0.5	Lab	Exceed Pb NR-SRL As, Tl high RL above NR-SRLs		
	J10	0.5, 3, 6	XRF	Exceed Mn R-SRL at 3 feet		
	J12	0.5, 3, 6	XRF	Exceed Mn, Pb NR-SRL at 3 feet		
	J12	3	Lab	Exceed Mn, Pb NR-SRL; As, Tl high RLs above NR-SRLs		
	K9	0.5, 3, 6	XRF	Exceed Pb NR-SRL at 3 feet Exceed Mn R-SRL at 3 feet		
	K11	0.5, 3, 6	XRF	Exceed Mn, Pb NR-SRL at 3 feet		
	K11	3	Lab	Exceed As NR-SRL Exceed Mn, Pb R-SRL		
	L10	0.5, 3, 6	XRF	Exceed Pb NR-SRL at 3 feet Exceed Mn R-SRL at 3 feet and 6 feet		
	L10	3	Lab	Exceed Mn, Pb NR-SRL; As, Tl RL > NR-SRL		
	ReH10	0.5	XRF	No Exceedances		
	Re-I9	0.5	XRF	No Exceedances		
	Re-J12	0.5	XRF	No Exceedances		
	Re-L10	8	XRF	No Exceedances		

Notes:
Bold = lab sample location that will remain following planned excavation
Italic = XRF sample location that will remain following planned excavation

Shading = NR-SRL exceedance

Table 1. Summary Description of Decision Units, Historical Sampling, and Proposed Remediation Activities

Decision Unit (size in acres)	Existing Sample Points	Depth (feet) see notes	Analysis Type	Results (As=Arsenic; Pb=Lead; Mn=Manganese; Tl=Thallium; SRL=Soil Remediation Level; NR=Non-Residential; R=Residential; RL= Reporting Limit)	Reference	Actions
5b (0.544)	PO-7	0.5, 3, 6	Lab	Exceed As NR-SRL at 0.5 and 3 Exceed Mn, Pb, Tl R-SRL at 0.5 feet and Tl R-SRL at 3 Exceed Pb, Mn NR-SRL at 3 feet	URS, 2013 Soil Investigation Additional Analyses - Selected Lower Depth Samples Correspondence	Following grubbing, sample locations I7 and J8 at 3 and 6 feet and analyze for target compounds. (Goal is to verify the excavation depth - 0.5 feet vs 3 feet.) Complete excavation to depth indicated on Figure 3 unless field change are made based on laboratory results. Collect confirmation samples from side walls and floor of excavation. Wall samples will be collected at two depths (0.5 feet and 3 feet) at each sampling location. Cleanup Goal: Non-Residential
	F6	0.5, 3, 6	XRF	Exceed Pb NR-SRL at 0.5 feet Exceed Mn R-SRL at 0.5 feet	URS, 2016 Soil Sampling and Risk Assessment Results Report	
	F6	0.5	Lab	Exceed Pb NR-SRL; As, Tl high RL above NR-SRL Exceed Mn R-SRL		
	F8	0.5, 3, 6	XRF	Exceed Pb NR-SRL at 0.5 feet Exceed Mn R-SRL at 0.5 feet		
	F8	6	Lab	No Exceedances		
	G7	0.5, 3, 6	XRF	Exceed Mn, Pb NR-SRL at 0.5 feet Exceed Mn, Pb NR-SRL at 3 feet		
	G7	3	Lab	Exceed Pb, Mn NR-SRL at 3 feet As, Tl high RLs above NR-SRLs		
	G9	0.5, 3, 6	XRF	No Exceedances		
	H6	0.5, 3, 6	XRF	Exceed Mn, Pb NR-SRL at 0.5 feet		
	H6	0.5	Lab	Exceed Mn, Pb NR-SRL; As, Tl high RLs above NR-SRLs		
	H8	0.5	XRF	No Exceedances		
	I7	0.5	XRF	Exceed Mn, Pb NR-SRL at 0.5 feet		
	I7	0.5	Lab	Exceed Mn, Pb NR-SRL; As, Tl high RLs above NR-SRLs		
	J8	0.5	XRF	Exceed Mn, Pb R-SRL at 0.5 feet		
	J8	0.5	Lab	Exceed Pb NR-SRL; As and Tl high RLs above NR-SRLs Exceed Mn R-SRL		

Notes:
Bold = lab sample location that will remain following planned excavation
Italic = XRF sample location that will remain following planned excavation

Shading = NR-SRL exceedance

Table 1. Summary Description of Decision Units, Historical Sampling, and Proposed Remediation Activities

Decision Unit (size in acres)	Existing Sample Points	Depth (feet) see notes	Analysis Type	Results (As=Arsenic; Pb=Lead; Mn=Manganese; Tl=Thallium; SRL=Soil Remediation Level; NR=Non-Residential; R=Residential; RL= Reporting Limit)	Reference	Actions
6 (0.111)	OP-1	0.5, 3, 6	Lab	Exceed As NR-SRL at 0.5 and 3 Exceed Mn, Pb, Tl R-SRL at 0.5 feet Exceed Mn R-SRL at 3 feet	URS, 2013 Phase II ESA and URS, 2013 Soil Investigation Additional Analyses - Selected Lower Depth Samples Correspondence	Excavate to depth shown in Figure 3. Perform confirmation sampling on excavation floor and sidewalls. Sidewall samples will be collected at a depth of 3 feet. Cleanup Goal: Non-Residential
	OP-2	0.5	Lab	No Exceedances		
	OP-3	0.5, 3, 6	Lab	Exceed As NR-SRL at 0.5 and 3 feet Exceed Pb NR-SRL at 3 feet Exceed Mn, Tl R-SRL at 0.5 and 3 feet		
	OP-4	0.5, 3	Lab	Exceed MN R-SRL at 0.5 and 3 feet		
	OP-5	0.5, 3	Lab	Exceed As NR-SRL at 0.5 feet Exceed Mn, Tl R-SRL at 0.5 feet		
	OP-6	0.5, 3, 6	Lab	Exceed As NR-SRL at 0.5 and 3 feet Exceed Mn R-SRL at 0.5 and 3 feet		
	OP-7	0.5, 3	Lab	Exceed As, Mn, Pb, Tl NR-SRL at 0.5		
	OP-8	0.5, 3	Lab	Exceed As, Mn, Pb, NR-SRL at 0.5 Exceed Tl R-SRL at 0.5 feet		
	DS-1	0.5, 3, 6	Lab	Exceed As NR-SRL at 0.5 feet Exceed As, Mn, Pb NR-SRL at 3 feet Exceed Mn R-SRL at 0.5 feet	URS, 2016 Soil Sampling and Risk Assessment Results Report	
	DS-10	0.5, 3, 6	Lab	Exceed As, Pb NR-SRL at 0.5 feet Exceed As NR-SRL at 3 feet Exceed Mn R-SRL at 0.5 and 3 feet		
	K7	0.5, 3, 6	XRF	Exceed As NR-SRL at 0.5 feet Exceed Mn R-SRL at 0.5 feet		
	K7	3	Lab	No Exceedances		
	L6	0.5, 3, 6	XRF	No Exceedances		
	L8	0.5, 3, 6	XRF	Exceed As, Mn, Pb NR-SRL at 0.5 feet		
7 (0.009)	SS-4	2, 4	Lab	Exceed As, Pb, Mn, Tl NR-SRL at 2 feet Exceed As NR-SRL at 4 feet Exceed Mn R-SRL at 4 feet	URS, 2012 Manganese Ore Area Letter	Excavate as shown on Figure 3. Collect confirmation samples from side walls at 0.5 and 4 feet and floor of excavation. Cleanup Goal: Non-Residential

Notes:
Bold = lab sample location that will remain following planned excavation
Italic = XRF sample location that will remain following planned excavation

Shading = NR-SRL exceedance

Table 1. Summary Description of Decision Units, Historical Sampling, and Proposed Remediation Activities

Decision Unit (size in acres)	Existing Sample Points	Depth (feet) see notes	Analysis Type	Results (As=Arsenic; Pb=Lead; Mn=Manganese; Tl=Thallium; SRL=Soil Remediation Level; NR=Non-Residential; R=Residential; RL= Reporting Limit)	Reference	Actions
8 (0.009)	SS-5	2, 4	Lab	Exceed As, Pb, Mn, Tl NR-SRL at 2 feet Exceed As NR-SRL at 4 feet Exceed Mn R-SRL at 4 feet	URS, 2012 Manganese Ore Area Letter	Excavate as shown on Figure 3. Collect confirmation samples from side walls at 0.5 and 4 feet and floor of excavation. Cleanup Goal: Non-Residential
9 (0.009)	O3	0.5, 3, 6	XRF	Exceed Mn R-SRL at 0.5 feet	URS, 2016 Soil Sampling and Risk Assessment Results Report	Using existing laboratory sample at O3, calculate 95% UCL for DU 12. If 95% UCL exceeds the NR-SRL, excavate this area and collect 2 floor samples, and one sidewall sample from each wall of the excavation. Use the maximum concentration value to re-calculate the 95% UCL for DU 12. Cleanup Goal: Non-Residential
	O3	0.5	Lab	Exceed As NR-SRL at 0.5 feet		
10 (0.009)	L4	0.5, 3, 6	XRF	Exceed As NR-SRL at 0.5 feet Exceed As NR-SRL at 6 feet (1 of 5 readings) Exceed Mn R-SRL at 0.5 feet	URS, 2016 Soil Sampling and Risk Assessment Results Report	Pothole this location and collect samples at 3 and 6 feet for laboratory analysis of target compounds. Pending results, excavate to depth as shown on Figure 3 or to 6 inches beyond the deepest exceedance of the NR-SRL. Collect confirmation samples from side walls at 0.5 feet and floor of excavation. Cleanup Goal: Non-Residential

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Shading = NR-SRL exceedance

Table 1. Summary Description of Decision Units, Historical Sampling, and Proposed Remediation Activities

Decision Unit (size in acres)	Existing Sample Points	Depth (feet) see notes	Analysis Type	Results (As=Arsenic; Pb=Lead; Mn=Manganese; Tl=Thallium; SRL=Soil Remediation Level; NR=Non-Residential; R=Residential; RL= Reporting Limit)	Reference	Actions
11 (1.158)	PO-5	0.5	Lab	No Exceedances	URS, 2013 Phase II ESA	Five existing laboratory-analyzed samples. Collect additional soil samples for laboratory analysis to confirm soils less than NR-SRLs. Cleanup Goal: Non-Residential
	A1	0.5, 3, 6	XRF	Exceed Tl R-SRL at 3 feet	URS, 2016 Soil Sampling and Risk Assessment Results Report	
	A1	0.5	Lab	No Exceedances		
	A3	0.5, 3, 6	XRF	No Exceedances		
	B2	0.5, 3, 6	XRF	No Exceedances		
	B4	0.5, 3, 6	XRF	No Exceedances		
	C1	0.5, 3, 6	XRF	No Exceedances		
	C3	0.5, 3, 6	XRF	No Exceedances		
	D2	0.5, 3, 6	XRF	Exceed Hg R-SRL at 3 feet		
	D2	6	Lab	No Exceedances		
	D4	0.5, 3, 6	XRF	No Exceedances		
	E1	0.5, 3, 6	XRF	No Exceedances		
	E3	0.5, 3, 6	XRF	Exceed Tl R-SRL at 3 feet		
	E3	0.5	Lab	No Exceedances		
	F2	0.5, 3, 6	XRF	No Exceedances		
	F2	0.5	Lab	No Exceedances		
	G1	0.5, 3, 6	XRF	No Exceedances		
	G3	0.5, 3, 6	XRF	No Exceedances		
	H2	0.5, 3, 6	XRF	No Exceedances		
12 (1.104)	H2	0.5, 3, 6	XRF	No Exceedances	URS, 2013 Phase II ESA	Two existing laboratory-analyzed samples. Collect additional soil samples for laboratory analysis to confirm soils less than NR-SRLs. DU 9 is also located within this DU. Cleanup Goal: Non-Residential
	I1	0.5, 3, 6	XRF	Exceed Tl R-SRL at 3 feet	URS, 2016 Soil Sampling and Risk Assessment Results Report	
	I1	3	Lab	No Exceedances		
	I3	0.5, 3, 6	XRF	Exceed Mn, Pb R-SRL at 0.5 feet		
	J2	0.5, 3, 6	XRF	No Exceedances		
	J2	3	Lab	No Exceedances		
	K1	0.5, 3, 6	XRF	No Exceedances		
	K3	0.5, 3, 6	XRF	No Exceedances		
	L2	0.5, 3, 6	XRF	No Exceedances		
	M1	0.5, 3, 6	XRF	No Exceedances		
	M3	0.5, 3, 6	XRF	No Exceedances		
	N2	0.5, 3, 6	XRF	No Exceedances		
	N4	0.5, 3, 6	XRF	No Exceedances		
	O1	0.5, 3, 6	XRF	Exceed Tl R-SRL at 0.5 feet		
	O3	0.5, 3, 6	XRF	See DU 9		

Notes:
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Shading = NR-SRL exceedance

Table 1. Summary Description of Decision Units, Historical Sampling, and Proposed Remediation Activities

Decision Unit (size in acres)	Existing Sample Points	Depth (feet) see notes	Analysis Type	Results (As=Arsenic; Pb=Lead; Mn=Manganese; Tl=Thallium; SRL=Soil Remediation Level; NR=Non-Residential; R=Residential; RL= Reporting Limit)	Reference	Actions
13 (1.031)	P2	0.5, 3, 6	XRF	No Exceedances	URS, 2016 Soil Sampling and Risk Assessment Results Report	Two existing laboratory-analyzed samples. Collect additional soil samples for laboratory analysis to confirm soils less than NR-SRLs. DU 23 is also located within this DU. Cleanup Goal: Non-Residential
	P4	0.5, 3, 6	XRF	No Exceedances		
	P4	6	Lab	No Exceedances		
	Q1	0.5, 3, 6	XRF	No Exceedances		
	Q3	0.5, 3, 6	XRF	No Exceedances		
	R2	0.5, 3, 6	XRF	No Exceedances		
	R4	0.5, 3, 6	XRF	See DU 23		
	S1	0.5, 3, 6	XRF	Exceed Tl R-SRL at 3 feet		
	S3	0.5, 3, 6	XRF	No Exceedances		
	T1	0.5, 3, 6	XRF	No Exceedances		
	U1	0.5, 3, 6	XRF	No Exceedances		
	U1	3	Lab	No Exceedances		
14 (0.831)	SB-3	2, 3	Lab	See DU 4	URS, 2012 Manganese Ore Area Letter	One existing laboratory-analyzed sample (outside of DU 3 and DU 4). Collect additional soil samples for laboratory analysis to confirm soils less than NR-SRLs. Samples from DU 3, 4, and 21 within this area will provide additional information. Cleanup Goal: Non-Residential
	SB-4	2, 15	Lab		URS, 2013 Phase II ESA	
	DP-7	0.5, 2, 4	Lab			
	DP-8	0.5, 2	Lab		URS, 2016 Soil Sampling and Risk Assessment Results Report	
	Re-SB-3	8, 10	XRF			
	M5	0.5, 3, 6	XRF	Exceed Mn R-SRL at 0.5 feet Exceed Tl R-SRL at 3 feet		
	N6	0.5, 3, 6	XRF	See DU 21		
	N8	0.5, 3, 6	XRF	Exceed Tl R-SRL at 3 feet		
	O5	0.5, 3, 6	XRF	Exceed Tl R-SRL at 3 feet		
	O7	0.5, 3, 7	XRF	See DU 4		
	O7	6	Lab			
	O9	0.5, 3, 6	XRF	Exceed Tl R-SRL at 0.5 feet		
	P6	0.5, 3, 6	XRF	No Exceedances		
	P8	0.5, 3, 6	XRF	No Exceedances		
	Q5	0.5, 3, 6	XRF	Exceed Tl R-SRL at 3 feet		
	Q7	0.5, 3, 7	XRF	See DU 3		
	Q9	0.5, 3, 6	XRF	Exceed Tl R-SRL at 0.5 and 3 feet		
	Q9	6	Lab	No Exceedances		

Notes:
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Italic = XRF sample location that will remain following planned excavation

Shading = NR-SRL exceedance

Table 1. Summary Description of Decision Units, Historical Sampling, and Proposed Remediation Activities

Decision Unit (size in acres)	Existing Sample Points	Depth (feet) see notes	Analysis Type	Results (As=Arsenic; Pb=Lead; Mn=Manganese; Tl=Thallium; SRL=Soil Remediation Level; NR=Non-Residential; R=Residential; RL= Reporting Limit)	Reference	Actions
15 (0.951)	SS-17	2	Lab	No Exceedances	URS, 2012 Manganese Ore Area Letter	Three existing laboratory-analyzed samples. Prior to excavation, pothole at S9 and T4 to collect soil samples at three depths for laboratory analysis to evaluate for As. Collect additional soil samples at 0.5 feet for laboratory analysis to confirm soils less than NR-SRLs. Cleanup Goal: Non-Residential
	R6	0.5, 3, 6	XRF	No Exceedances	URS, 2016 Soil Sampling and Risk Assessment Results Report	
	R8	0.5, 3, 6	XRF	Exceed Pb, Mn R-SRL at 0.5 feet		
	S5	0.5, 3, 6	XRF	Exceed Mn R-SRL at 0.5 feet		
	S5	6	Lab	No Exceedances		
	S7	0.5, 3, 6	XRF	Exceed Mn R-SRL at 0.5 feet		
	S9	0.5, 3, 6	XRF	Exceed As NR-SRL at 6 feet Exceed Tl R-SRL at 0.5 feet		
	Re-S9	8	XRF	No Exceedances		
	T4	0.5, 3, 6	XRF	Exceed As NR-SRL at 6 feet		
	Re-T4	8	XRF	No Exceedances		
	T6	0.5, 3, 6	XRF	Exceed Pb, Mn R-SRL at 0.5 feet		
	T8	0.5, 3, 6	XRF	Exceed Mn R-SRL at 0.5 feet		
	T8	6	Lab	No Exceedances		
	U3	0.5, 3, 6	XRF	No Exceedances		
	U5	0.5, 3, 6	XRF	No Exceedances		
	U7	0.5, 3, 6	XRF	No Exceedances		
	U9	0.5, 3, 6	XRF	No Exceedances		
16 (0.859)	Q11	0.5, 3, 6	XRF	Exceed Tl R-SRL at 3 feet	URS, 2016 Soil Sampling and Risk Assessment Results Report	One existing laboratory-analyzed sample. Collect composite soil samples for laboratory analysis to confirm soils less than R-SRLs. Discrete samples at Q11 and U11 at 0.5 and 3 feet to verify Tl concentration. Cleanup Goal: Residential
	R10	0.5, 3, 6	XRF	No Exceedances		
	S11	0.5, 3, 6	XRF	No Exceedances		
	T10	0.5, 3, 6	XRF	Exceed Tl R-SRL at 0.5 feet		
				Exceed Tl R-SRL at 3 feet (lab data <R-SRL))		
	U11	0.5, 3, 6	XRF	Exceed Tl R-SRL at 6 feet		
	U11	3	Lab	No Exceedances		
17 (0.816)	M11	0.5, 3, 6	XRF	Exceed Tl R-SRL at 0.5 feet and 3 feet	URS, 2016 Soil Sampling and Risk Assessment Results Report	Two existing laboratory-analyzed samples. Collect composite soil samples for laboratory analysis to confirm soils less than R-SRLs at 0.5 feet. Sample at M11 to verify that Tl does not exceed the R-SRL. Cleanup Goal: Residential
	M13	0.5, 3, 6	XRF	Exceed As NR-SRL at 3 feet (lab data <R-SRL)		
	M13	3	Lab	No Exceedances		
	N10	0.5, 3, 6	XRF	No Exceedances		
	N12	0.5, 3, 6	XRF	No Exceedances		
	O11	0.5, 3, 6	XRF	No Exceedances		
	O13	0.5, 3, 6	XRF	No Exceedances		
	O13	3	Lab	No Exceedances		
	P10	0.5, 3, 6	XRF	See DU 20		

Notes:

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Table 1. Summary Description of Decision Units, Historical Sampling, and Proposed Remediation Activities

Decision Unit (size in acres)	Existing Sample Points	Depth (feet) see notes	Analysis Type	Results (As=Arsenic; Pb=Lead; Mn=Manganese; Tl=Thallium; SRL=Soil Remediation Level; NR=Non-Residential; R=Residential; RL= Reporting Limit)	Reference	Actions
18 (0.962)	I13	0.5, 3, 6	XRF	No Exceedances	URS, 2016 Soil Sampling and Risk Assessment Results Report	Three existing laboratory-analyzed samples. Collect composite soil samples for laboratory analysis to confirm soils less than R-SRLs at 0.5 and 3 feet. Sample at J14 to verify that Tl does not exceed the R-SRL at 0.5 feet. Cleanup Goal: Residential
	J14	0.5, 3, 6	XRF	Exceed Tl R-SRL at 0.5 feet		
	J14	3	Lab	No Exceedances		
	K13	0.5, 3, 6	XRF	No Exceedances		
	L12	0.5, 3, 6	XRF	No Exceedances		
	M11	0.5, 3, 6	XRF	Exceed Tl R-SRL at 0.5 feet and 3 feet		
	M13	0.5, 3, 6	XRF	Exceed As NR-SRL at 3 feet (lab data <R-SRL)		
	M13	3	Lab	No Exceedances		
	N14	0.5, 3, 6	XRF	Exceed Tl R-SRL at 3 feet (lab data <R-SRL)		
	N14	3	Lab	No Exceedances		
19 (0.920)	C11	0.5, 3, 6	XRF	No Exceedances	URS, 2016 Soil Sampling and Risk Assessment Results Report	Two existing laboratory-analyzed samples. Collect composite soil samples for laboratory analysis to confirm soils less than R-SRLs at 0.5 and 3 feet. Sample at H12 to verify that Tl does not exceed the R-SRL. Cleanup Goal: Residential
	E9	0.5, 3, 6	XRF	No Exceedances		
	E9	6	Lab	No Exceedances		
	E11	0.5, 3, 6	XRF	No Exceedances		
	F10	0.5, 3, 6	XRF	No Exceedances		
	F10	6	Lab	No Exceedances		
	G9	0.5, 3, 6	XRF	No Exceedances		
	G11	0.5, 3, 6	XRF	See DU 22		
	H12	0.5, 3, 6	XRF	Exceed Tl R-SRL at 3 feet		
	I13	0.5, 3, 6	XRF	No Exceedances		
20 (0.009)	P10	0.5, 3, 6	XRF	Exceed As NR-SRL at 3 feet	URS, 2016 Soil Sampling and Risk Assessment Results Report	Pothole to 3 feet to collect sample to verify As less than the R-SRL. If NR-SRL is exceeded, excavate to remove an area of 20 feet by 20 feet and collect floor and sidewall samples (6 total). Cleanup Goal: Residential (pending results of potholed sample)

Notes:

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Shading = NR-SRL exceedance

Table 1. Summary Description of Decision Units, Historical Sampling, and Proposed Remediation Activities

Decision Unit (size in acres)	Existing Sample Points	Depth (feet) see notes	Analysis Type	Results (As=Arsenic; Pb=Lead; Mn=Manganese; Tl=Thallium; SRL=Soil Remediation Level; NR=Non-Residential; R=Residential; RL= Reporting Limit)	Reference	Actions
21 (0.009)	N6	0.5, 3, 6	XRF	Exceed As NR-SRL at 3 feet Exceed TI R-SRL at 3 feet	URS, 2016 Soil Sampling and Risk Assessment Results Report	Pothole to 3 feet to collect sample to verify As less than the NR-SRL and TI less than the R-SRL. If NR-SRLs are exceeded, excavate to remove an area of 20 feet by 20 feet and collect floor and sidewall samples (6 total). Cleanup Goal: Non-Residential
22 (0.009)	G11	0.5, 3, 6	XRF	Exceed TI NR-SRL at 3 feet	URS, 2016 Soil Sampling and Risk Assessment Results Report	Pothole to 3 feet to collect sample to verify TI less than the R-SRL. If NR-SRL is exceeded, excavate to remove an area of 20 feet by 20 feet and collect floor and sidewall samples (6 total). Cleanup Goal: Residential (pending results of potholed sample)
23 (0.009)	R4	0.5, 3, 6	XRF	Exceed As NR-SRL at 0.5 feet	URS, 2016 Soil Sampling and Risk Assessment Results Report	Re-sample R4 at 0.5 feet for laboratory analysis to verify As concentration. If NR-SRL is exceeded, excavate to remove an area of 20 feet by 20 feet and collect floor and sidewall samples (6 total). Cleanup Goal: Non-Residential
24	RS-1	0.5	Lab	No Exceedances	URS, 2013 Phase II ESA	Collect an additional 10 samples at 0.5 feet for laboratory analysis as shown in Figure 5. Cleanup Goal: Residential
	RS-2	0.5	Lab	No Exceedances		
	RS-3	0.5	Lab	No Exceedances		
	RS-4	0.5	Lab	No Exceedances		
	RS-5	0.5	Lab	No Exceedances		
	RS-6	0.5	Lab	No Exceedances		
	RS-7	0.5	Lab	No Exceedances		
	RS-8	0.5	Lab	No Exceedances		
	RS-9	0.5	Lab	No Exceedances		
	RS-10	0.5	Lab	No Exceedances		

Notes:
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Shading = NR-SRL exceedance

Table 1. Summary Description of Decision Units, Historical Sampling, and Proposed Remediation Activities

Decision Unit (size in acres)	Existing Sample Points	Depth (feet) see notes	Analysis Type	Results (As=Arsenic; Pb=Lead; Mn=Manganese; Tl=Thallium; SRL=Soil Remediation Level; NR=Non-Residential; R=Residential; RL= Reporting Limit)	Reference	Actions
25 (~ 1 acre)	PO-9	0.5	Lab	No Exceedances	URS, 2013 Phase II ESA	Collect four composite samples at 0.5 feet for laboratory analysis as shown in Figure 5.
	PO-10	0.5, 3	Lab	No Exceedances		Cleanup Goal: Residential
26 (~ 1 acre)	SS-18	2	Lab	No Exceedances	URS, 2012 Manganese Ore Area Letter	Collect four composite samples at 0.5 feet for laboratory analysis as shown in Figure 5. Cleanup Goal: Residential
27 (~ 1 acre)	None				Not applicable	Collect four composite samples at 0.5 feet for laboratory analysis as shown in Figure 5. Cleanup Goal: Residential
28 (~ 1/2 acre)	None				Not applicable	Collect two composite samples at 0.5 feet for laboratory analysis as shown in Figure 5. Cleanup Goal: Residential
29 (0.818)	A7	0.5, 3, 6	XRF	Exceed TI R-SRL at 3 feet	URS, 2016 Soil Sampling and Risk Assessment Results Report	Collect four composite soil samples for laboratory analysis to confirm soils less than R-SRLs. Sample at A7, A9, B8, and B10 to verify that TI does not exceed the R-SRL. Cleanup Goal: Residential
	A9	0.5, 3, 6	XRF	Exceed TI R-SRL at 3 feet		
	A11	0.5, 3, 6	XRF	No Exceedances		
	A11	3	Lab	No Exceedances		
	B8	0.5, 3, 6	XRF	Exceed TI R-SRL at 3 feet		
	B10	0.5, 3, 6	XRF	Exceed TI R-SRL at 0.5 feet		
	C9	0.5, 3, 6	XRF	Exceed TI R-SRL at 3 feet (lab data <R-SRL)		
	C9	3	Lab	No Exceedances		
	C11	0.5, 3, 6	XRF	No Exceedances		
	D10	0.5, 3, 6	XRF	No Exceedances		
	E9	0.5, 3, 6	XRF	No Exceedances		
	E9	6	Lab	No Exceedances		
	E11	0.5, 3, 6	XRF	No Exceedances		

Notes:
Bold = lab sample location that will remain following planned excavation
Italic = XRF sample location that will remain following planned excavation

Shading = NR-SRL exceedance

Table 2. Summary of Proposed Confirmation Sampling Following Excavation

Decision Unit (size in acres)	Actions	Proposed Confirmation Samples	Depth below initial grade (feet)					Number Confirmation Samples	Total Number Confirmation Samples Collected Per DU	
			0.5 - 1	3.0 - 3.5	4.0 - 4.5	6.0 - 6.5	15			
1a (1.145)	Re-locate concrete saddles to site area not impacted by site activities. Excavate as indicated on Figure 3. Decision Units 2, 7, and 8 are also located within this DU. Collect confirmation samples from sidewalls at 0.5 feet and floor of excavation. Cleanup Goal: Non-Residential	Floor	8					8	25	
		West Wall	3					3		
		North Wall	2					2		
		Northeast Wall	3					3		
		Southeast Wall	2					2		
		South Wall	1					1		
		B4	1	1	1			3		
		E4	1	1	1			3		
		Existing Samples	1	5	1	1	1			
		Other DUs								
		DU 2 (max value)	1	1						
		DU 7 (max value)	1		2					
		DU 8 (max value)	1		2					
		Total by Depth	25	8	7	1	1			
1b (1.684)	Excavate as indicated on Figure 3. Decision Units 1c, 1d, 6, and 10 are also located within this DU. Collect confirmation samples from sidewalls at 0.5 feet and floor of excavation. Confirmation samples to be collected east of PO-8 in excavation sidewalls (DU 17). Cleanup Goal: Non-Residential	Floor	11					11	25	
		West Wall(s)	6					6		
		South Wall(s)	3					3		
		East Wall	NA					NA		
		North Wall	NA					NA		
		I3	1					1		
		K3	1	1				2		
		M3	1	1				2		
		Existing Samples	1	7			1			
		Other DUs								
		DU 1c (max value)	depth of samples is unknown - corresponds to footer on concrete structure							
		DU 1d (max value)	depth of samples is unknown - corresponds to footer on concrete structure							
		DU 10 (max value)	1							
		DU 6	considered separately - no samples included in evaluation of 1b							
		Total by Depth	25	9	0	0	1			

Table 2. Summary of Proposed Confirmation Sampling Following Excavation

Decision Unit (size in acres)	Actions	Proposed Confirmation Samples	Depth below initial grade (feet)					Number Confirmation Samples	Total Number Confirmation Samples Collected Per DU
			0.5 - 1	3.0 - 3.5	4.0 - 4.5	6.0 - 6.5	15		
1c (0.101)	Vactor soil/processed ore off of concrete surface. Excavate soil around the edge of the concrete to base of footer and collect samples. Sample base of excavation around the concrete. Cleanup Goal: Non-Residential	Floor	depth of to be determined - corresponds to footer on concrete structure					8	8
		Existing Samples							
		Total by Depth	TBD	TBD	TBD	TBD	0		
1d (0.013)	Grub between semi-circular concrete structures.Vactor soil/processed ore off of concrete surface. Excavate soil around the edge of the concrete to the depth of the footer. Sample base of excavation around the concrete. Cleanup Goal: Non-Residential	Floor	depth of to be determined - corresponds to footer on concrete structure					8	8
		Existing Samples							
		Total by Depth	TBD	TBD	TBD	TBD	0		
2 (0.009)	Excavate as shown on Figure 3. Collect confirmation samples from side walls at 0.5 and 3 feet and floor of excavation. Cleanup Goal: Non-Residential	Floor		2				2	10
		West Wall	1	1				2	
		South Wall	1	1				2	
		East Wall	1	1				2	
		North Wall	1	1				2	
		Existing Samples					1		
3 (0.170)	Demolish concrete as necessary. Excavate as shown on Figure 3. Collect confirmation samples from side walls at 0.5 feet and floor of excavation. Cleanup Goal: Non-Residential	Floor	8					8	12
		West Wall	1					1	
		South Wall	1					1	
		East Wall	1					1	
		North Wall	1					1	
		Existing Samples		1		1			
4 (0.115)	Demolish concrete as necessary. Excavate as shown on Figure 3. Collect confirmation samples from side walls and floor of excavation to confirm below NR-SRLs. Sidewall sample locations to include 3 depths at each location (0.5, 3, and 6). Cleanup Goal: Non-Residential	Floor				8		8	20
		Northwest Wall	1	1		1		3	
		Southwest Wall	1	1		1		3	
		Southeast Wall	1	1		1		3	
		Northeast Wall	1	1		1		3	
		Existing Samples					1		
		Total by Depth	4	4	0	12	1		

Table 2. Summary of Proposed Confirmation Sampling Following Excavation

Decision Unit (size in acres)	Actions	Proposed Confirmation Samples	Depth below initial grade (feet)					Number Confirmation Samples	Total Number Confirmation Samples Collected Per DU
			0.5 - 1	3.0 - 3.5	4.0 - 4.5	6.0 - 6.5	15		
5a (1.039)	Following grubbing, sample location H8 at 3 feet and 6 feet and analyze for target compounds. (Goal is to verify the excavation depth - 0.5 feet vs 3 feet.) Remove top 2 feet of soil, stockpile, and sample for target compounds. Pending results of analysis, soil will either be transported and disposed, or used as backfill. Complete excavation to depth indicated on Figure 3 unless field changes are made based on sampling results at H8. Collect confirmation samples from side walls (at depth of 0.5 and/or 3 feet) and floor of excavation. Cleanup Goal: Non-Residential	Floor		8				8	24
		Southwest Wall		2				2	
		Southeast Wall	2	2				4	
		East Wall(s)	4	4				8	
		H8 (potholed prior to excavation)		1		1		2	
									No north or northwest walls due to excavation DU 5b
		Existing Samples							
		Total by Depth	6	17	0	1	0		
5b (0.544)	Following grubbing, sample locations I7 and J8 at 3 and 6 feet and analyze for target compounds. (Goal is to verify the excavation depth - 0.5 feet vs 3 feet.) Complete excavation to depth indicated on Figure 3 unless field change are made based on laboratory results. Collect confirmation samples from side walls and floor of excavation. Wall samples will be collected at two depths (0.5 feet and 3 feet) at each sampling location. Cleanup Goal: Non-Residential	Floor		6				6	24
		Southwest Wall	2	2				4	
		Northwest Wall	2	2				4	
		North Wall	2	2				4	
		East Wall	1	1				2	
		I7 (potholed prior to excavation)		1		1		2	
		J8 (potholed prior to excavation)		1		1		2	
									No east wall due to excavation in DU 5a
		Existing Samples				2			
		Total by Depth	7	15	0	4	0		
6 (0.111)	Excavate to depth shown in Figure 3. Perform confirmation sampling on excavation floor and sidewalls. Sidewall samples will be collected at a depth of 3 feet. Cleanup Goal: Non-Residential	Floor		8				8	22
		Northwest Wall	1	1				2	
		Southwest Wall	3	3				6	
		Southeast Wall	1	1				2	
		Northeast Wall	2	2				4	
		Existing Samples				6			
		Total by Depth	7	15	0	6	0		

Table 2. Summary of Proposed Confirmation Sampling Following Excavation

Decision Unit (size in acres)	Actions	Proposed Confirmation Samples	Depth below initial grade (feet)					Number Confirmation Samples	Total Number Confirmation Samples Collected Per DU
			0.5 - 1	3.0 - 3.5	4.0 - 4.5	6.0 - 6.5	15		
7 (0.009)	Excavate as shown on Figure 3. Collect confirmation samples from side walls at 0.5 and 4 feet and floor of excavation. Cleanup Goal: Non-Residential	Floor			2			2	10
		West Wall	1		1			2	
		South Wall	1		1			2	
		East Wall	1		1			2	
		North Wall	1		1			2	
		Existing Samples							
		Total by Depth	4	0	6	0	0		
8 (0.009)	Excavate as shown on Figure 3. Collect confirmation samples from side walls at 0.5 and 4 feet and floor of excavation. Cleanup Goal: Non-Residential	Floor			2			2	10
		West Wall	1		1			2	
		South Wall	1		1			2	
		East Wall	1		1			2	
		North Wall	1		1			2	
		Existing Samples							
		Total by Depth	4	0	6	0	0		
9 (0.009)	Using existing laboratory sample at O3, calculate 95% UCL for DU 12. If 95% UCL exceeds the NR-SRL, excavate this area and collect 2 floor samples, and one sidewall sample from each wall of the excavation. Use the maximum concentration value to re-calculate the 95% UCL for DU 12. Cleanup Goal: Non-Residential	Floor	2					2	6
		West Wall	1					1	
		South Wall	1					1	
		East Wall	1					1	
		North Wall	1					1	
		Existing Samples							
		Total by Depth	6	0	0	0	0		

Table 2. Summary of Proposed Confirmation Sampling Following Excavation

Decision Unit (size in acres)	Actions	Proposed Confirmation Samples	Depth below initial grade (feet)					Number Confirmation Samples	Total Number Confirmation Samples Collected Per DU
			0.5 - 1	3.0 - 3.5	4.0 - 4.5	6.0 - 6.5	15		
10 (0.009)	Pothole this location and collect samples at 3 and 6 feet for laboratory analysis of target compounds. Pending results, excavate to depth as shown on Figure 3 or to 6 inches beyond the deepest exceedance of the NR-SRL. Collect confirmation samples from side walls at 0.5 feet and floor of excavation. Cleanup Goal: Non-Residential	Floor	2					2	8
		West Wall	1					1	
		South Wall	1					1	
		East Wall	1					1	
		North Wall	1					1	
		Potholed prior to excavation		1		1		2	
		Existing Samples							If excavation depth >1 foot, collect multiple depths of sidewall samples
		Total by Depth	6	1	0	1	0		
11 (1.158)	Five existing laboratory-analyzed samples. Collect additional soil samples for laboratory analysis to confirm soils less than NR-SRLs. Cleanup Goal: Non-Residential	C3	1					1	3
		D2	1					1	
		G3	1					1	
								0	
		Existing Samples	4			1			
		Other DUs							
		DU 1a B4	1						
		DU 1a E4	1						
		Total by Depth	9	0	0	1	0		
12 (1.104)	Two existing laboratory-analyzed samples. Collect additional soil samples for laboratory analysis to confirm soils less than NR-SRLs. DU 9 is also located within this DU. Cleanup Goal: Non-Residential	I1	1					1	6
		I3	1					1	
		J2	1					1	
		K2	1					1	
		N2	1					1	
		O1	1					1	
		Existing Samples		2					
		Other DUs							
		DU 9 (max value)	1						
		K3 at DU1b	1	1					
		M3 at DU1b	1	1					
		Total by Depth	9	4	0	0	0		

Table 2. Summary of Proposed Confirmation Sampling Following Excavation

Decision Unit (size in acres)	Actions	Proposed Confirmation Samples	Depth below initial grade (feet)					Number Confirmation Samples	Total Number Confirmation Samples Collected Per DU
			0.5 - 1	3.0 - 3.5	4.0 - 4.5	6.0 - 6.5	15		
13 (1.031)	Two existing laboratory-analyzed samples. Collect additional soil samples for laboratory analysis to confirm soils less than NR-SRLs. DU 23 is also located within this DU. Cleanup Goal: Non-Residential	P2	1					1	7
		Q3	1					1	
		R2	1					1	
		S1	1					1	
		S3	1					1	
		S4	1					1	
		U2	1					1	
		Existing Samples		1		1			
		<u>Other DUs</u>							
		DU 23 (max value)	1						
		Total by Depth	8	1	0	1	0		
14 (0.831)	One existing laboratory-analyzed sample (outside of DU 3 and DU 4). Collect additional soil samples for laboratory analysis to confirm soils less than NR-SRLs. Samples from DU 3, 4, and 21 within this area will provide additional information. Cleanup Goal: Non-Residential	O5	1	1		1		3	15
		P6	1	1		1		3	
		P8	1	1		1		3	
		Q5	1	1		1		3	
		Q9	1	1		1		3	
		Existing Samples		1		2			
		<u>Other DUs</u>							
		DU 21	1	1		1			
		DU 3 (max value)	1						
		DU 4 (max value)	1	1		1			
		DU 1b (max S sidewall)	1						
		Total by Depth	9	8	0	9	0		

Table 2. Summary of Proposed Confirmation Sampling Following Excavation

Decision Unit (size in acres)	Actions	Proposed Confirmation Samples	Depth below initial grade (feet)					Number Confirmation Samples	Total Number Confirmation Samples Collected Per DU
			0.5 - 1	3.0 - 3.5	4.0 - 4.5	6.0 - 6.5	15		
15 (0.951)	Three existing laboratory-analyzed samples. Prior to excavation, pothole at S9 and T4 to collect soil samples at three depths for laboratory analysis to evaluate for As. Collect additional soil samples at 0.5 feet for laboratory analysis to confirm soils less than NR-SRLs. Cleanup Goal: Non-Residential	R6	1					1	12
		S5	1					1	
		S9	1	1		1		3	
		T4	1	1		1		3	
		T7	1					1	
		T8	1					1	
		U5	1					1	
		U9	1					1	
		Existing Samples				2			
		<u>Other DUs</u>							
		DU 3 (south sidewall)	1						
		Total by Depth	9	2	0	4	0		
16 (0.859)	One existing laboratory-analyzed sample. Collect composite soil samples for laboratory analysis to confirm soils less than R-SRLs. Discrete samples at Q11 and U11 at 0.5 and 3 feet to verify TI concentration. Cleanup Goal: Residential	composite 16a (five aliquots)	1					1	6
		composite 16b (five aliquots)	1					1	
		composite 16c (five aliquots)	1					1	
		composite 16d (five aliquots)	1					1	
		Q11		1				1	
		U11				1		1	
		Existing Samples							
		Total by Depth	4	1	0	1	0		
17 (0.816)	Two existing laboratory-analyzed samples. Collect composite soil samples for laboratory analysis to confirm soils less than R-SRLs at 0.5 feet. Sample at M11 to verify that TI does not exceed the R-SRL. Cleanup Goal: Residential	composite 17a (five aliquots)	1					1	6
		composite 17b (five aliquots)	1					1	
		composite 17c (five aliquots)	1					1	
		composite 17d (five aliquots)	1					1	
		M11	1	1				2	
		Existing Samples		3					
		<u>Other DUs</u>							
		DU 20	1	1					
		Total by Depth	6	5	0	0	0		

Table 2. Summary of Proposed Confirmation Sampling Following Excavation

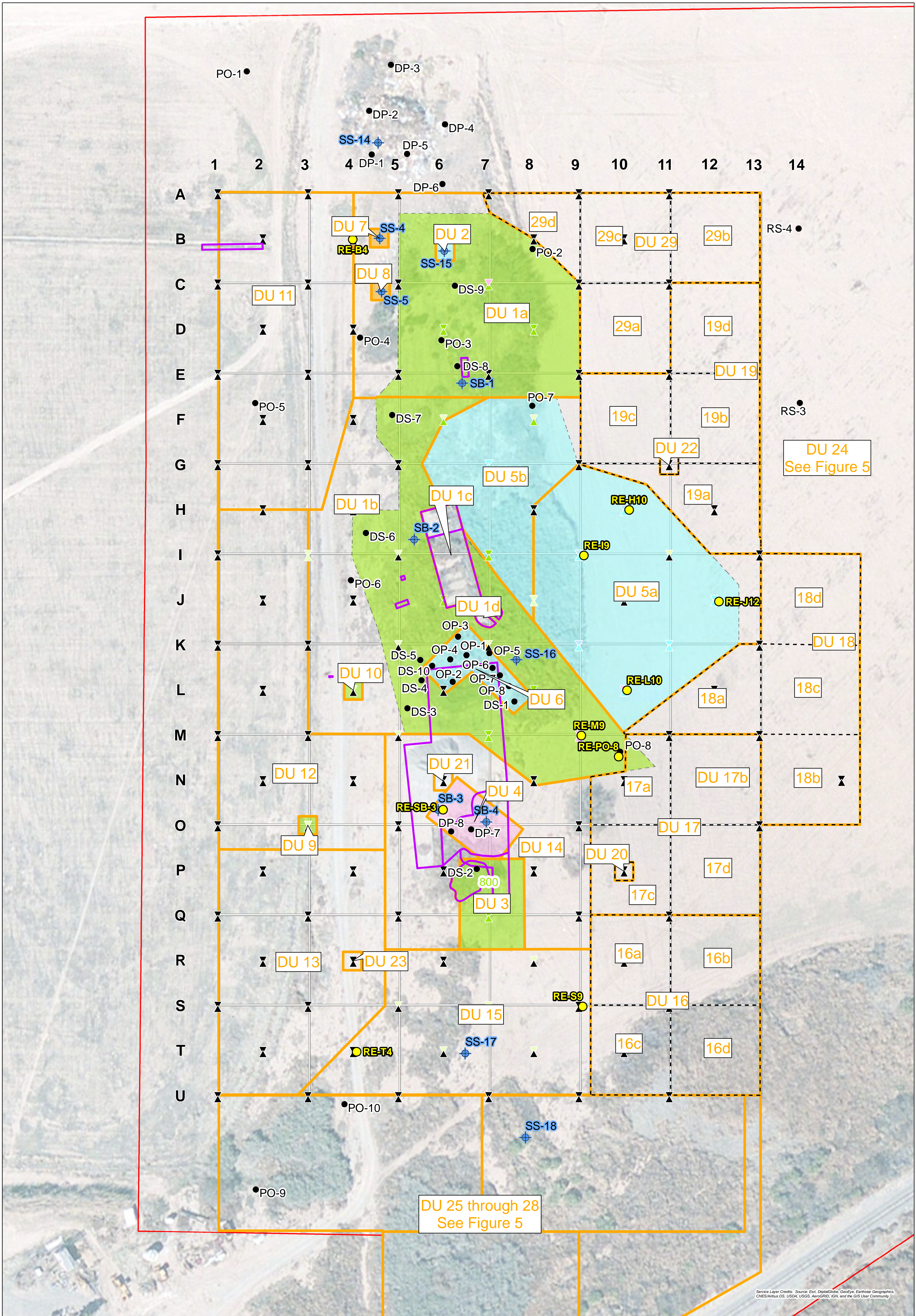
Decision Unit (size in acres)	Actions	Proposed Confirmation Samples	Depth below initial grade (feet)					Number Confirmation Samples	Total Number Confirmation Samples Collected Per DU
			0.5 - 1	3.0 - 3.5	4.0 - 4.5	6.0 - 6.5	15		
18 (0.962)	Three existing laboratory-analyzed samples. Collect composite soil samples for laboratory analysis to confirm soils less than R-SRLs at 0.5 and 3 feet. Sample at J14 to verify that TI does not exceed the R-SRL at 0.5 feet. Cleanup Goal: Residential	composite 18a (five aliquots)	1	1				2	9
		composite 18b (five aliquots)	1	1				2	
		composite 18c (five aliquots)	1	1				2	
		composite 18d (five aliquots)	1	1				2	
		J14	1					1	
		Existing Samples		3					
		Total by Depth	5	7	0	0	0		
19 (0.920)	Two existing laboratory-analyzed samples. Collect composite soil samples for laboratory analysis to confirm soils less than R-SRLs at 0.5 and 3 feet. Sample at H12 to verify that TI does not exceed the R-SRL. Cleanup Goal: Residential	composite 19a (five aliquots)	1	1				2	10
		composite 19b (five aliquots)	1	1				2	
		composite 19c (five aliquots)	1	1				2	
		composite 19d (five aliquots)	1	1				2	
		H12	1	1				2	
		Existing Samples				2			
		Other DUs							
		DU 22	1	1					
		Total by Depth	6	6	0	2	0		
20 (0.009)	Pothole to 3 feet to collect sample to verify As less than the R-SRL. If NR-SRL is exceeded, excavate to remove an area of 20 feet by 20 feet and collect floor and sidewall samples (6 total). Cleanup Goal: Residential (pending results of potholed sample)	P10	1	1				2	2
		Existing Samples							
		Total by Depth	1	1	0	0	0		
21 (0.009)	Pothole to 3 feet to collect sample to verify As less than the NR-SRL and TI less than the R-SRL. If NR-SRLs are exceeded, excavate to remove an area of 20 feet by 20 feet and collect floor and sidewall samples (6 total). Cleanup Goal: Non-Residential	N6	1	1				2	2
		Existing Samples							
		Total by Depth	1	1	0	0	0		
22 (0.009)	Pothole to 3 feet to collect sample to verify TI less than the R-SRL. If NR-SRL is exceeded, excavate to remove an area of 20 feet by 20 feet and collect floor and sidewall samples (6 total). Cleanup Goal: Residential (pending results of potholed sample)	G11	1	1				2	2
		Existing Samples							
		Total by Depth	1	1	0	0	0		

Table 2. Summary of Proposed Confirmation Sampling Following Excavation

Decision Unit (size in acres)	Actions	Proposed Confirmation Samples	Depth below initial grade (feet)					Number Confirmation Samples	Total Number Confirmation Samples Collected Per DU
			0.5 - 1	3.0 - 3.5	4.0 - 4.5	6.0 - 6.5	15		
23 (0.009)	Re-sample R4 at 0.5 feet for laboratory analysis to verify As concentration. If NR-SRL is exceeded, excavate to remove an area of 20 feet by 20 feet and collect floor and sidewall samples (6 total). Cleanup Goal: Non-Residential	R4	1					1	1
		Existing Samples							
		Total by Depth	1	0	0	0	0		
24	Collect an additional 10 samples at 0.5 feet for laboratory analysis as shown in Figure 5. Cleanup Goal: Residential	See Figure 5	10					10	10
		Existing Samples	10						
		Total by Depth	20	0	0	0	0		
25 (~ 1 acre)	Collect four composite samples at 0.5 feet for laboratory analysis as shown in Figure 5. Cleanup Goal: Residential	composite 25a (five aliquots)	1					1	4
		composite 25b (five aliquots)	1					1	
		composite 25c (five aliquots)	1					1	
		composite 25d (five aliquots)	1					1	
		Existing Samples	2	1					
		Total by Depth	6	1	0	0	0		
26 (~ 1 acre)	Collect four composite samples at 0.5 feet for laboratory analysis as shown in Figure 5. Cleanup Goal: Residential	composite 26a (five aliquots)	1					1	4
		composite 26b (five aliquots)	1					1	
		composite 26c (five aliquots)	1					1	
		composite 26d (five aliquots)	1					1	
		Existing Samples							
		Total by Depth	4	0	0	0	0		
27 (~ 1 acre)	Collect four composite samples at 0.5 feet for laboratory analysis as shown in Figure 5. Cleanup Goal: Residential	composite 27a (five aliquots)	1					1	4
		composite 27b (five aliquots)	1					1	
		composite 27c (five aliquots)	1					1	
		composite 27d (five aliquots)	1					1	
		Existing Samples							
		Total by Depth	4	0	0	0	0		

Table 2. Summary of Proposed Confirmation Sampling Following Excavation

Decision Unit (size in acres)	Actions	Proposed Confirmation Samples	Depth below initial grade (feet)					Number Confirmation Samples	Total Number Confirmation Samples Collected Per DU	
			0.5 - 1	3.0 - 3.5	4.0 - 4.5	6.0 - 6.5	15			
28 (~ 1/2-acre)	Collect two composite samples at 0.5 feet for laboratory analysis as shown in Figure 5.	composite 28a (five aliquots)	1					1	4	
		composite 28b (five aliquots)	1					1		
		composite 28c (five aliquots)	1					1		
		composite 28d (three aliquots)	1					1		
	Cleanup Goal: Residential	Existing Samples								
		Total by Depth	4	0	0	0	0			
29 (0.818)	Collect four composite soil samples for laboratory analysis to confirm soils less than R-SRLs. Sample at A7, A9, B8, and B10 to verify that TI does not exceed the R-SRL.	composite 29a (five aliquots)	1					1	8	
		composite 29b (five aliquots)	1					1		
		composite 29c (five aliquots)	1					1		
		composite 29d (five aliquots)	1					1		
		A7		1				1		
		A9		1				1		
		B8		1				1		
		B10	1					1		
		Cleanup Goal: Residential								
			Existing Samples		2		1			
		Total by Depth	5	5	0	1	0			
Total Number of Confirmation Samples								327	327	



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Legend**
- Decision Unit
 - Quarter Acre Decision Subunit
 - Subject Property
 - XRF Sample Location_Pb Result
 - XRF Sample Location_Mn Result
 - 100-Foot Sample Grid
 - Additional XRF Sample Locations
 - Historical Soil Boring Location (2012)
 - Historical Soil Boring Location (2013)
 - Concrete Structures

- Removal of 1.0 Foot of Soil BGS
- Removal of 3.5 Feet of Soil BGS
- Removal of 4.5 Feet of Soil BGS
- Removal of 6.5 Feet of Soil BGS

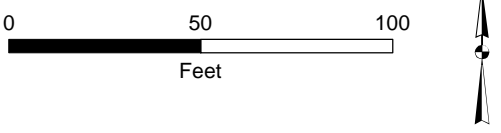
Definitions:
XRF - X-Ray Fluorescence
ppm - parts per million
mg/kg - milligrams per kilogram
BGS - below ground surface
NR-SRL - non-residential soil remediation level

NR-SRL [mg/kg]
As = 10
Mn = 32000
Pb = 800

As - Arsenic
Mn - Manganese
Pb - Lead

FIGURE 4
PROPOSED DECISION UNITS

MCMULLEN VALLEY FORMER MANGANESE ORE SITE
LA PAZ COUNTY, ARIZONA



May 2017 **AECOM**

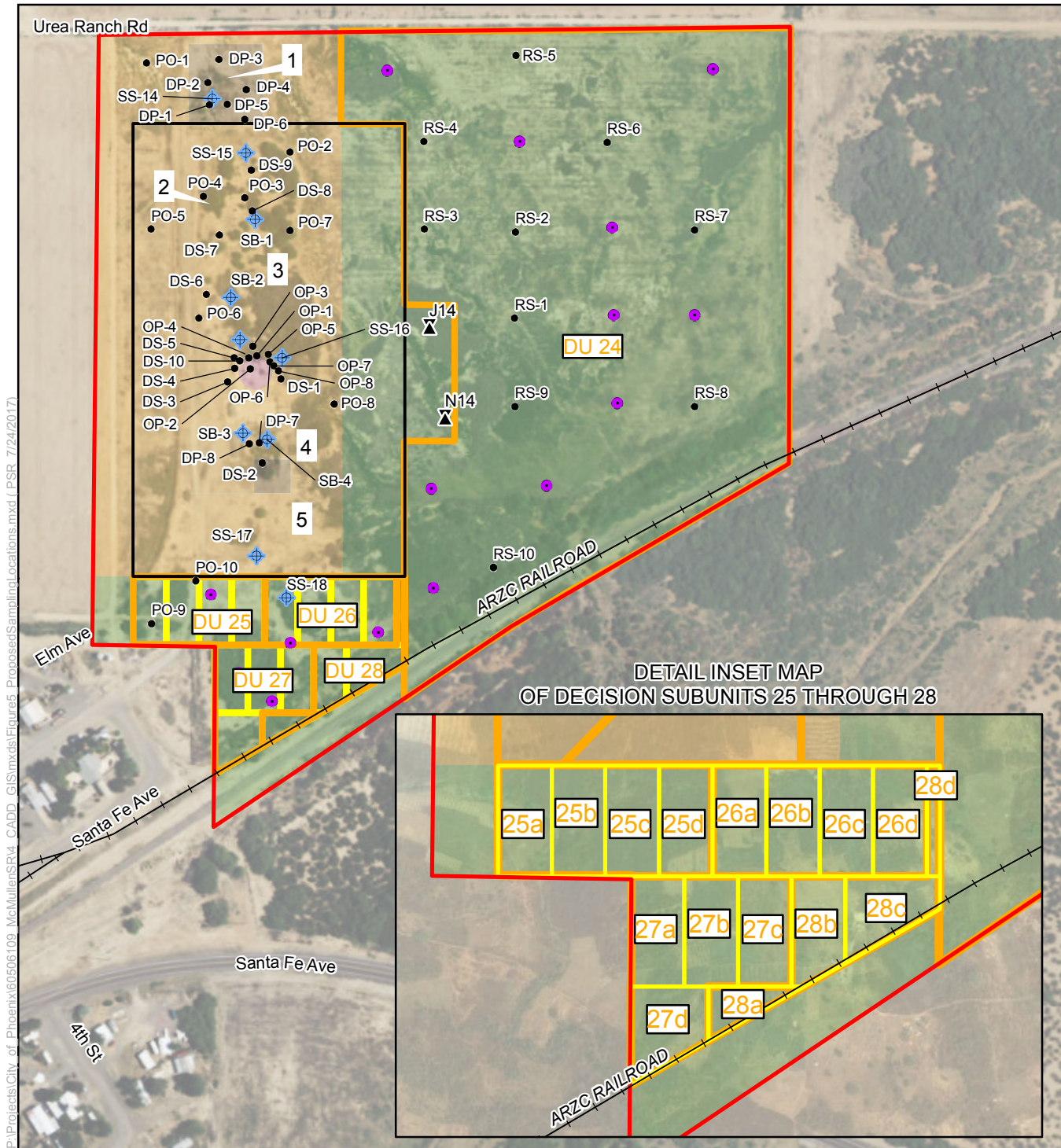


FIGURE 5
 PROPOSED SAMPLING LOCATIONS
 MCMULLEN VALLEY FORMER MANGANESE
 ORE PROCESSING FACILITY
 LA PAZ COUNTY, ARIZONA

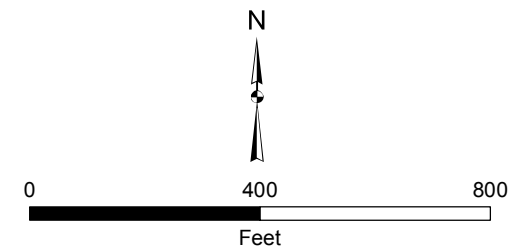
City of Phoenix

Legend

- Previous Operations Area
- Remaining Site Area
- Debris Pile
- Ore Pile
- Subject Property
- Boundary of XRF Study
- Decision Unit
- Quarter Acre (approximate)
- Decision Unit Subdivision
- Proposed Soil Boring
- Soil Boring, 2013
- Soil Boring, 2012
- XRF Sample Location Pb Result
- XRF Sample Location Mn Result

- 1 - Trash Debris Pile
- 2 - Approximate Location of the Former AST Foundation
- 3 - Approximate Location of the Raised Foundation
- 4 - Approximate Location of the Concrete Slab
- 5 - Approximate Location of the Former Wash Pad

Source:
 Soil Boring: URS 2012, 2013
 Base map: National Agriculture Imagery Program, 2010
 Imagery: Service Layer Credits: Source: Esri, DigitalGlobe,
 GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid,
 IGN, IGP, swisstopo, and the GIS User Community



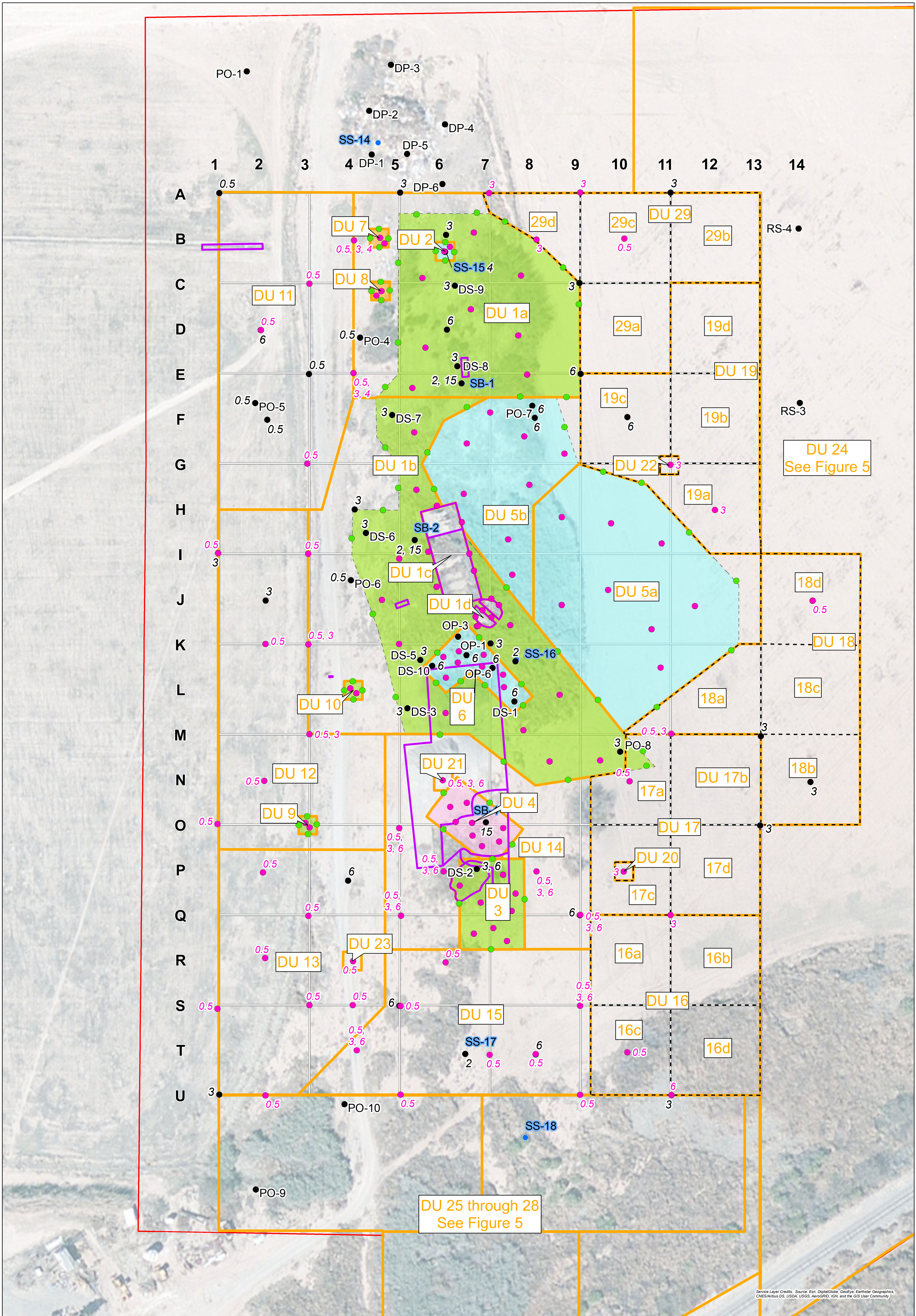


FIGURE 6
PROPOSED LABORATORY CONFIRMATION SAMPLING LOCATIONS
AND EXISTING LABORATORY SAMPLES REMAINING
FOLLOWING EXCAVATION
MCMULLEN VALLEY FORMER MANGANESE ORE SITE
LA PAZ COUNTY, ARIZONA

Legend

- Decision Unit
- Subject Property
- Quarter Acre Decision Subunit
- Proposed Floor/Surface/Boring Laboratory Sample Boring Depth in Feet
- Proposed Wall Laboratory Sample (see Table 1 for Depth)
- 100-Foot Sample Grid
- Historical Laboratory Soil Sample Depth in Feet
- Concrete Structures

- Removal of 1 Foot of Soil BGS
- Removal of 3.5 Feet of Soil BGS
- Removal of 4.5 Feet of Soil BGS
- Removal of 6.5 Feet of Soil BGS

Definitions:
BGS - below ground surface
NR-SRL - non-residential soil remediation level

